

# PRESURVEY CONFERENCE – CONSTRUCTION SURVEY FORM

Revised: 3/27/03

Project No.: \_\_\_\_\_ Conference Date: \_\_\_\_\_  
Project Code: \_\_\_\_\_ Conference Time: \_\_\_\_\_  
Project Location: \_\_\_\_\_ Conference Location: \_\_\_\_\_

Project Engineer: \_\_\_\_\_  
Region Surveyor Coordinator: \_\_\_\_\_  
Region Plans Coordinator: \_\_\_\_\_

Contractor: \_\_\_\_\_  
Representative: \_\_\_\_\_ Representative: \_\_\_\_\_

Surveying Firm: \_\_\_\_\_  
Responsible PE or PLS: \_\_\_\_\_ Colorado PE or PLS No.: \_\_\_\_\_  
Survey Crew Chief: \_\_\_\_\_

## I. PRE-SURVEY REQUIREMENTS

### A. CDOT

1. Has a Project Control Diagram showing existing vertical and horizontal control information for the project been provided? If not will a control survey be provided? (625.03, para.1) (629.06 para. 3)
  
  
  
  
  
  
  
  
  
  
2. Has a Land Survey Control Diagram showing Right of Way, Public Land Survey, Boundary and Easement monuments located during the Preliminary Survey been provide (629.01)?
  
  
  
  
  
  
  
  
  
  
3. Have Right of Way plans been provided? (629.06, para. 2)

## B. Contractor and/or Surveying Firm

1. The responsible PE or PLS indicated above shall be available to review work, resolve problems, and make decisions in a timely manner. (625.01)
2. The Contractor shall furnish all personnel, materials, equipment, and traffic control necessary to perform the required construction surveying. (625.02)
3. The contractor shall check all Department-established control points to verify and document their accuracy, prior to using them for construction survey control. (625.03, para. 4)
4. Does the Contractor have the latest CDOT Survey Manual?  
  
Survey procedures shall be performed in conformance with the latest edition of the CDOT Survey Manual. (625.03, para. 3) (629.03, para. 2)
5. The Contractor shall submit a schedule of contractor construction surveying time before the first partial payment is made for this work. The schedule shall indicate the construction surveying time for each work item that requires construction surveying and the total for the project. (625.13, para. 3) (629.03, para. 1)

## II. EQUIPMENT CALIBRATION

- A. All Global Positioning System and conventional survey equipment calibrations shall be completed in conformance with the CDOT Survey Manual and documented in the field notes before and after fieldwork. (625.02) (629.03, para. 3)

1. All Global Positioning System and conventional survey equipment shall be checked in accordance with CDOT Survey Manual on a National Geodetic Survey (NGS) / National Oceanic and Atmospheric Administration (NOAA) calibrated baseline. (625.02, 629.03 para. 3, (1) & (2))
2. Levels shall be checked in accordance with the CDOT Survey Manual using the Two Peg method as stated in Chapter 5. (625.02, 629.03 para. 3, (3))
3. Miscellaneous equipment including all measuring tapes, survey rods, hand levels and other equipment shall have been checked in accordance with the CDOT Survey Manual. (625.02, 629.03 para. 3, (4))

### **III. CONSTRUCTION REQUIREMENTS**

- A. The Contractor shall perform all construction surveying and staking that is necessary for construction of the project (625.04).

Discuss items of work that will require construction surveying (earthwork, subgrade preparation, major/minor structures, curb and gutter, HBP, concrete pavement, etc.).

- B. Acceptable staking placement intervals for the various construction surveying operations are described in the CDOT Survey Manual, Chapter 6. (625.05)
- C. It is the responsibility of the Contractor to perform all required layout work, which shall include, but will not be limited to the following: (105.08, (b) para. 7)
  1. Piling locations and cut off elevation.
  2. Steps on piers and abutments.
  3. Bolt locations and patterns.
  4. Construction sign locations.
  5. Guardrail.

Who will be responsible for performing required layout work? (*i.e.* Contractor, surveying firm, subcontractor, etc.)

- D. Accuracy of surveys and survey tolerances shall be as specified in the Contract or the CDOT Survey Manual. (625.06, 629.03, para 2)

Discuss the required tolerances for various surveying tasks as indicated in the plans / survey manual. The Contractor shall check the work to verify the accuracy and include documentation of this check in the Survey Records. (625.07, 629.03 para. 4)

- E. Supervision and coordination of construction surveying is the Contractor's responsibility (625.07, 629.04, 629.05).

Has survey work been scheduled in conjunction with planned construction activities?

- F. Control points, benchmarks, and other significant stakes (that are not tabulated on the Survey Tabulation Sheet for replacement) that are damaged, destroyed, or made inaccessible by the progress of construction shall be replaced, transferred, or re-established at the Contractor's expense (625.08).

Land monuments and property marks shall not be disturbed or moved until their location has been witnessed or referenced in accordance with Section 629 and their removal approved (107.12).

What measures will be taken by the Contractor to ensure that needed stakes are not destroyed by construction activities prior to referencing?

- G. All changes in lines and grades required by field conditions and all discrepancies in grades, alignment, location or dimensions detected by the Contractor shall be immediately submitted to the Engineer in writing. No changes in given data or plans will be allowed unless approved by the Engineer in writing. All changes shall be documented in the survey records (625.09).

Are there any possible changes to required construction surveying as a result of anticipated Change Modification Orders or Minor Contract Revisions?

- H. The Engineer will perform cross-section surveys and all other interim and final measurements needed to determine contract pay quantities. The Contractor shall maintain control points and stationing as required for these measurements. (625.10)

#### **IV. SURVEY RECORDS**

- A. Survey records shall be completed as the work is done. Field survey notes, for construction surveying and checking, shall be recorded by the Contractor in field notebooks that are in conformance with the format given in the CDOT Survey Manual. If an electronic format is used, it shall contain the same information and format as required in the Survey Manual for written documentation. (625.11, 629.03, para. 4)
- B. Initial staking for major structures (overhead signs, concrete box culverts, bridges, and all other structures assigned a structure number) shall be done in conformance with the CDOT Survey Manual from two independent setups. An independent check shall be made by the Contractor and shown in the survey notebooks for all bridge structures. (625.11, para. 2)
- C. All survey records generated shall be considered the property of the CDOT and shall be available for inspection or reproduction at anytime. (625.11, para. 3, 629.03, para. 4)
- D. All survey records shall be stamped with the seal of, and signed by, the responsible PE or PLS identified in subsection 625.01 and shall be transmitted to the Engineer for inclusion into the project records before final project acceptance. (625.11 para. 3, 629.09)

- E. The Contractor shall provide an as constructed survey of the abutments and piers prior to girder erection. The Contractor shall submit to the Engineer a copy of the survey notes detailing the girder seat elevations, anchor bolt locations and projections, and span distances from centerline of bearing to centerline of bearing. The survey notes shall indicate all adjustments necessary for bearing device dimensions other than those shown on the plans. The Contractor shall submit details for all adjustments to the Engineer for approval. (601.12, (L) para. 2)
  
- F. The Contractor shall provide a survey of each overhead sign foundation to verify placement soon after work on the foundation has been completed. The survey shall conform to the requirements of Section 625 – Construction Surveying. The Contractor shall submit to the Engineer a copy of the survey notes detailing the foundation location and elevation and the anchor bolt locations, projections, and orientations and in the case of sign bridge type of overhead signs, the distance measured between the centerline of the anchor bolt groups. The elevation of the ground surrounding each foundation shall also be provided. The Contractor shall compare the survey information to the reviewed shop drawing and reconcile any differences between them. The contractor shall submit all proposed adjustments or modifications to the engineer for approval. (M & S Standard Plan S-614-50)

## **V. CONTROL SURVEY**

- A. Each item of data for the control survey for setting (if control is not already furnished by CDOT) or for replacing any control monument shall be performed in accordance with the CDOT Survey Manual. (625.03 para. 3, 629.03, para. 2, 629.06, para. 3)

How will the control survey for setting any new control or replacing any existing control be performed?

- B. A Project Control Diagram showing any set and/or replaced horizontal and vertical control monuments and data for the project will be prepared and submitted in accordance with the CDOT Survey Manual. (625.08, 629.09 para. 4 (3))
  
- C. Control monuments shall be set such that they are intervisible with at least two other adjacent control monuments and shall not conflict with construction activities. (629.06, para. 3)

- D. Accuracy of control surveys and land survey control survey tolerances shall be as specified in the Contract or the CDOT Survey Manual. (625.06, 629.03, para 2)

## **VI. ALIQUOT MONUMENTS**

- A. Are there any identified aliquot monuments on the project? (107.12, 625.01, 629.04)

If so, discuss number and location.

- B. Survey records shall be in accordance with the CDOT Survey Manual and shall include at a minimum the following items for any aliquot monuments on the project (625.01, 629.03, para. 5 and 629.06 para. 4):

1. A description of the original undisturbed aliquot monument.
2. A record of four temporary references to the original monument, which are outside of the construction area. These shall be straddle type references, unless otherwise approved.
3. A description of the reset aliquot monument including a minimum of three permanent accessories placed after the construction is completed.
4. Two, color photographs each of the original and of the new monument as set.
5. New Monument Record filed by the Contractor with the Board. A copy shall be submitted to the Engineer prior to filing.

- C. Have monument materials been provided by CDOT? (629.02)

## **VII. MONUMENTATION**

- A. What other land monuments (*i.e.* other than control and aliquot) types and quantities will be set or reset? (107.12, 625.01, 629.05)

- B. Have monument materials been provided by CDOT? (629.02)
- C. Monuments shall be set within in an error circle no greater than the tolerances specified in accordance with the CDOT Survey Manual. (629.06, para. 2)
- D. A Land Survey Control Diagram showing any set and/or replaced public or private land monument (*i.e.* monuments other than control) shall be prepared and submitted in accordance with the CDOT Survey Manual. (107.08, 625.08, 629.01, 629.09)

## **VIII. BASIS OF PAYMENT**

- A. Partial payment for construction surveying (Item 625), as determined by the Engineer, will be made as the work progresses (625.13, para. 3). Before payment is made (Item 629) the following shall be completed in accordance with the CDOT Survey manual, bear the signature of the PLS in responsible charge, and be deposited with the county in accordance with 38-51-107 CRS. (629.09, para. 4)
  - 1. All survey records. (*i.e.* monument records)
  - 2. The Control and Monumentation sheet of the R/W plans. (*i.e.* Land Survey Control Diagram along with a full set of Right of Way Plans)
  - 3. The Survey Control Diagram. (*i.e.* Project Control Diagram, this is not required to be deposited in the county records but may be so if desired)
- B. Construction surveying required by plan force account or by additional work beyond the scope of the original contract will be paid for at a negotiated rate not to exceed the rate established in Section 105.08. That rate shall also apply to reductions in construction surveying as impacted by reductions or deletions to the original contract work. Any survey work not performed to the contract requirements shall be subject to price reduction or rejection. (625.13, para. 2)



**Presurvey Conference – Construction Survey Form  
Attendance Roster**

**Project No.:** \_\_\_\_\_ **Project Code:** \_\_\_\_\_ **Date:** \_\_\_\_\_

<b>Name</b>	<b>Organization</b>	<b>Phone</b>	<b>Email or Fax</b>